Amendment of the Claims

Please cancel claims 1-40 without prejudice or disclaimer.

Please add the following new claims:

41. An electro-optical glazing structure comprising:

an electro-optical glazing panel including liquid crystal material interposed between a pair of optically-transparent substrates, said electro-optical glazing panel having an electrically-switchable scattering mode of operation and electrically-switchable transmission mode of operation; and

an optical state switching mechanism for electrically-switching said electro-optical glazing panel into said electrically-switchable scattering mode of operation and into said electrically-switchable transmission mode of operation,

wherein the liquid crystal material comprises a PSCT liquid crystal material lacking the mesogenic group of the general formula:

$[Si(CH_3)O]_n$.

42. The electro-optical glazing structure of claim 41, which has total-scattering and total-transmission modes of operation for improved control over the flow of electromagnetic radiation within the solar region of the electromagnetic spectrum.

43. The electro-optical glazing structure of claim 42, in which the modes of operation avoid the use of energy absorbing mechanisms.

44. The electro-optical glazing structure of claim 42 which has a broad band of operation, including the near-IR, visible and near-UV portions of the electromagnetic spectrum.

45. The electro-optical glazing structure of claim 41, wherein the optically transparent substrates comprise float-glass.

46. An electro-optical glazing structure comprising:

an electro-optical glazing panel including liquid crystal material interposed between a pair of optically-transparent substrates, said electro-optical glazing panel having an electrically-switchable scattering mode of operation and electrically-switchable transmission mode of operation; and

an optical state switching mechanism for electrically-switching said electro-optical glazing panel into said electrically-switchable scattering mode of operation and into said electrically-switchable transmission mode of operation,

wherein the liquid crystal material comprises Ethylene Glycol Dimethacrylate (EGD) commercially available from Aldrich.

47. The electro-optical glazing structure of claim 46, which has total-scattering and total-transmission modes of operation for improved control over the flow of electromagnetic radiation within the solar region of the electromagnetic spectrum.

48. The electro-optical glazing structure of claim 47, in which the modes of operation avoid the use of energy absorbing mechanisms.

49. The electro-optical glazing structure of claim 47 which has a broad band of operation, including the near-IR, visible and near-UV portions of the electromagnetic spectrum.

50. The electro-optical glazing structure of claim 46, wherein the optically transparent substrates comprise float-glass.

51. An electro-optical glazing structure comprising:

an electro-optical glazing panel including liquid crystal material interposed between a pair of optically-transparent substrates, said electro-optical glazing panel having an electrically-switchable scattering mode of operation and electrically-switchable transmission mode of operation; and

an optical state switching mechanism for electrically-switching said electro-optical glazing panel into said electrically-switchable scattering mode of operation and into said electrically-switchable transmission mode of operation,

wherein the liquid crystal material comprises a monomer selected from the group consisting of Ethylene Glycol Dimethacryiate (EGD), UV10, UV15-7 and combinations comprising at least one of the foregoing monomers commercially available from Aldrich and Master Bond.

52. The electro-optical glazing structure of claim 52, which has total-scattering and total-transmission modes of operation for improved control over the flow of electromagnetic radiation within the solar region of the electromagnetic spectrum.

53. The electro-optical glazing structure of claim 52, in which the modes of operation avoid the use of energy absorbing mechanisms.

54. The electro-optical glazing structure of claim 52 which has a broad band of operation, including the near-IR, visible and near-UV portions of the electromagnetic spectrum.

55. The electro-optical glazing structure of claim 51, wherein the optically transparent substrates comprise float-glass.

56. An electro-optical glazing structure comprising:

an electro-optical glazing panel including liquid crystal material interposed between a pair of optically-transparent substrates, said electro-optical glazing panel having an electrically-switchable scattering mode of operation and electrically-switchable transmission mode of operation; and

an optical state switching mechanism for electrically-switching said electro-optical glazing panel into said electrically-switchable scattering mode of operation and into said electrically-switchable transmission mode of operation,

wherein the liquid crystal material comprises a PSCT liquid crystal material and a dichroic dye.

57. The electro-optical glazing structure of claim 56, which has total-scattering and total-transmission modes of operation for improved control over the flow of electromagnetic radiation within the solar region of the electromagnetic spectrum.

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58. The electro-optical glazing structure of claim 57, in which the modes of operation avoid the use of energy absorbing mechanisms.

59. The electro-optical glazing structure of claim 57 which has a broad band of operation, including the near-IR, visible and near-UV portions of the electromagnetic spectrum.

60. The electro-optical glazing structure of claim 56, wherein the optically transparent substrates comprise float-glass.

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61. The electro-optical glazing structure of claim 56, wherein said dichroic dye is selected from the group consisting of D5, D35, D52 and combinations comprising at least one of the foregoing dyes commercially available from EMI.

62. An electro-optical glazing structure comprising:

an electro-optical glazing panel including liquid crystal material interposed between a pair of optically-transparent substrates, said electro-optical glazing panel having an electrically-switchable scattering mode of operation and electrically-switchable transmission mode of operation; and

an optical state switching mechanism for electrically-switching said electro-optical glazing panel into said electrically-switchable scattering mode of operation and into said electrically-switchable transmission mode of operation,

wherein the liquid crystal material comprises a surfactant.

63. The electro-optical glazing structure of claim 62, which has total-scattering and total-transmission modes of operation for improved control over the flow of electromagnetic radiation within the solar region of the electromagnetic spectrum.

64. The electro-optical glazing structure of claim 63, in which the modes of operation avoid the use of energy absorbing mechanisms.

65. The electro-optical glazing structure of claim 63 which has a broad band of operation, including the near-IR, visible and near-UV portions of the electromagnetic spectrum.

66. The electro-optical glazing structure of claim 62, wherein the optically transparent substrates comprise float-glass.

67. The electro-optical glazing structure of claim 62, wherein said surfactant comprises Poly (Dimethylsiloxane).

68. An electro-optical glazing structure comprising:

an electro-optical glazing panel including liquid crystal material interposed between a pair of optically-transparent substrates, said electro-optical glazing panel having an electrically-switchable scattering mode of operation and electrically-switchable transmission mode of operation; and

an optical state switching mechanism for electrically-switching said electro-optical glazing panel into said electrically-switchable scattering mode of operation and into said electrically-switchable transmission mode of operation,

wherein the liquid crystal material comprises a photo initiator selected from the group consisting of 2,6-Di-tert-butyl-4-methylphenol, IG500, D1173 and combinations comprising at least one of the foregoing photo initiators commercially available from Aldrich and Cyba Geigy.

69. The electro-optical glazing structure of claim 68, which has total-scattering and total-transmission modes of operation for improved control over the flow of electromagnetic radiation within the solar region of the electromagnetic spectrum.

70. The electro-optical glazing structure of claim 69, in which the modes of operation avoid the use of energy absorbing mechanisms.

71. The electro-optical glazing structure of claim 69 which has a broad band of operation, including the near-IR, visible and near-UV portions of the electromagnetic spectrum.

72. The electro-optical glazing structure of claim 68, wherein the optically transparent substrates comprise float-glass.

73. An electro-optical glazing structure comprising:

an electro-optical glazing panel including PSCT liquid crystal material interposed between a pair of optically-transparent substrates, said electro-optical glazing panel having an electrically-switchable scattering mode of operation and electrically-switchable transmission mode of operation; and

an optical state switching mechanism for electrically-switching said electro-optical glazing panel into said electrically-switchable scattering mode of operation and into said electrically-switchable transmission mode of operation,

wherein the PSCT liquid crystal material comprises CB15 commercially available from EMI as a chiral additive.

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74. The electro-optical glazing structure of claim 73, which has total-scattering and total-transmission modes of operation for improved control over the flow of electromagnetic radiation within the solar region of the electromagnetic spectrum.

75. The electro-optical glazing structure of claim 74, in which the modes of operation avoid the use of energy absorbing mechanisms.

76. The electro-optical glazing structure of claim 74 which has a broad band of operation, including the near-IR, visible and near-UV portions of the electromagnetic spectrum.

77. The electro-optical glazing structure of claim 73, wherein the optically transparent substrates comprise float-glass.

78. An electro-optical glazing structure comprising:

an electro-optical glazing panel including liquid crystal material interposed between a pair of optically-transparent substrates, said electro-optical glazing panel having an electrically-switchable scattering mode of operation and electrically-switchable transmission mode of operation; and

an optical state switching mechanism for electrically-switching said electro-optical glazing panel into said electrically-switchable scattering mode of operation and into said electrically-switchable transmission mode of operation,

wherein the liquid crystal material comprises a low molecular weight nematic liquid crystal material selected from the group consisting of K-series single compound liquid crystal, M-series single compound liquid crystal, E series multiple compound liquid crystal, ZLI-series multiple compound liquid crystal, E7 liquid crystal, E4A liquid crystal, P9615A liquid crystal and combinations comprising at least one of the foregoing low molecular weight nematic liquid crystal materials commercially available from EMI of Germany and SLCHEM of China.

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79. The electro-optical glazing structure of claim 78, which has total-scattering and total-transmission modes of operation for improved control over the flow of electromagnetic radiation within the solar region of the electromagnetic spectrum.

80. The electro-optical glazing structure of claim 79, in which the modes of operation avoid the use of energy absorbing mechanisms.

81. The electro-optical glazing structure of claim 79 which has a broad band of operation, including the near-IR, visible and near-UV portions of the electromagnetic spectrum.

82. The electro-optical glazing structure of claim 78, wherein the optically transparent substrates comprise float-glass.

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83. A liquid crystal material for an electro-optical glazing structure comprising a PSCT liquid crystal material lacking the mesogenic group of the general formula:

$[Si(CH_3)O]_n$.

84. A liquid crystal material for an electro-optical glazing structure comprising Ethylene Glycol Dimethacrylate (EGD) commercially available from Aldrich.

85. A liquid crystal material for an electro-optical glazing structure comprising a monomer selected from the group consisting of Ethylene Glycol Dimethacrylate (EGD), UV10, UV15-7 and combinations comprising at least one of the foregoing monomers commercially available from Aldrich and Master Bond.

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86. A liquid crystal material for an electro-optical glazing structure comprising a PSCT liquid crystal material and a dichroic dye.

87. The liquid crystal material of claim 86, wherein said dichroic dye is selected from the group consisting of D5, D35, D52 and combinations comprising at least one of the foregoing dyes commercially available from EMI.

88. A liquid crystal material for an electro-optical glazing structure comprising surfactant.

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89. The liquid crystal material of claim 88, wherein said surfactant comprises Poly (Dimethylsiloxane).

90. A liquid crystal material for an electro-optical glazing structure comprising a photo initiator selected from the group consisting of 2,6-Di-tert-butyl-4-methylphenol, IG500, D1173 and combinations comprising at least one of the foregoing photo initiators commercially available from Aldrich and Cyba Geigy.

91. A PSCT liquid crystal material for an electro-optical glazing structure comprising CB15 commercially available from EMI as a chiral additive.

92. A liquid crystal material for an electro-optical glazing structure comprising a low molecular weight nematic liquid crystal material selected from the group consisting of K-series single compound liquid crystal, M-series single compound liquid crystal, E series multiple compound liquid crystal, ZLI-series multiple compound liquid crystal, E7 liquid crystal, E4A liquid crystal, P9615A liquid crystal and combinations comprising at least one of the foregoing low molecular weight nematic liquid crystal materials commercially available from EMI of Germany and SLCHEM of China.